

Enterprise Risk Analytics: Perspectives from the Quantitative Analyst Front Lines

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Enterprise Risk Analytics: Enablers for Success

- Organization Placement & Executive Champion
- Office Mission Sets the Context and Culture
- Repeatable Process Integrating Strategy and Analysis
- Challenges and Opportunities in Analytics
- Final Takeaways



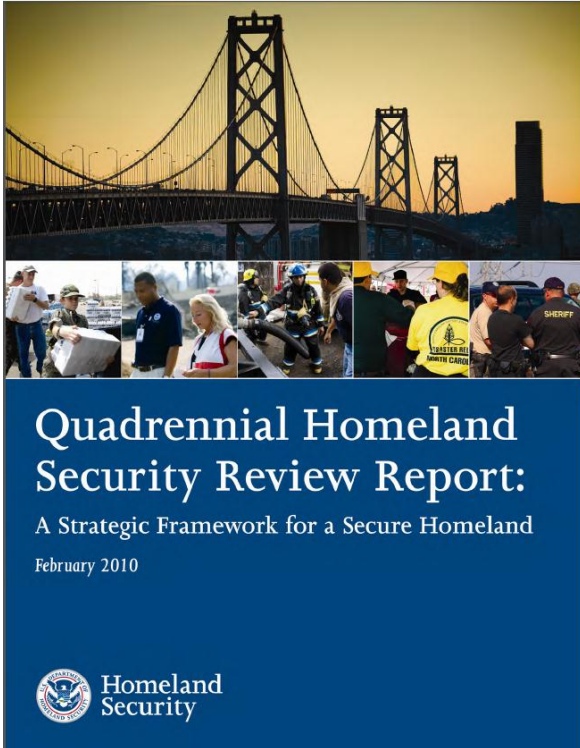
SPAR in the DHS Organization Chart

Placement Enables Integration of Strategy & Enterprise Risk



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SPAR Mission: Context for Enterprise Risk Analytics

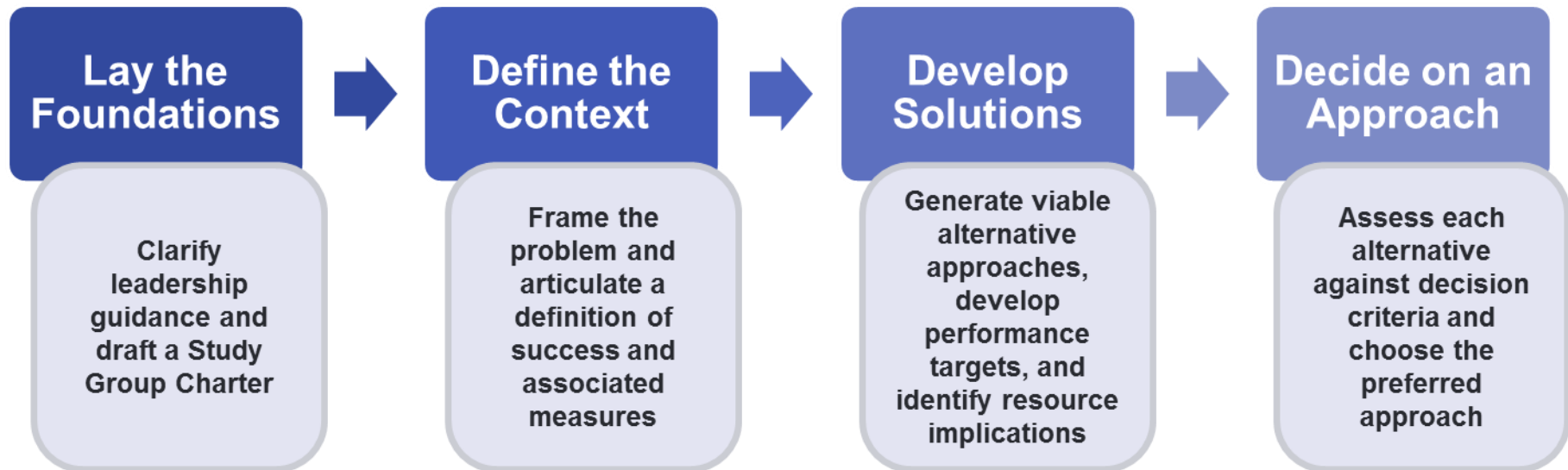


1. Develop analytically driven, high-impact products to improve DHS and homeland security enterprise strategic direction, integration, and decision-making
2. Strategic management of the Quadrennial Homeland Security Review (QHSR)

<http://www.dhs.gov/quadrennial-homeland-security-review-qhsr>

SPAR's Strategy Development Methodology

A flexible framework for analytically informing and developing strategy



SPAR Strategy Development

Process & Analysis Toolkit Reference Sheet



Process Steps by Phase

P R O C E S S	<ul style="list-style-type: none"> Form study group and core team Clarify leadership priorities & expectations, and legislative requirements & directives Develop charter & work plan Develop stakeholder engagement & communications plan Gather existing research and documents on the analytic question Identify preliminary decision criteria Articulate decision analysis design 	<ul style="list-style-type: none"> Assess the strategic environment (threat, risk, current and future trends & dynamics) Articulate the current strategy, programs, capabilities, and budget Develop common problem frame and articulate assumptions Define strategic outcomes and indicators 	<ul style="list-style-type: none"> Develop two or more viable alternative strategies Identify underlying assumptions and resource implications of each strategy Articulate performance targets for each strategy 	<ul style="list-style-type: none"> Confirm final decision criteria and leadership priorities Perform decision analysis Assess strategies for robustness against future uncertainty Communicate findings to senior leadership and stakeholders Develop strategy implementation plan
	<p>Key Deliverables</p> <ul style="list-style-type: none"> <input type="checkbox"/> Charter and Work Plan <input type="checkbox"/> Stakeholder Engagement Plan <input type="checkbox"/> Background Brief on the Topic <input type="checkbox"/> Preliminary Decision Criteria <input type="checkbox"/> Decision Analysis Design and Data Collection Plan 	<ul style="list-style-type: none"> <input type="checkbox"/> Strategic Environment Assessment <input type="checkbox"/> Articulation of the Current Approach <input type="checkbox"/> Common Problem Frame and Assumptions <input type="checkbox"/> Definition and Measures of Success 	<ul style="list-style-type: none"> <input type="checkbox"/> Articulation of Alternative Strategies, Underlying Assumptions and Resource Implications <input type="checkbox"/> Performance Targets for Each Strategy 	<ul style="list-style-type: none"> <input type="checkbox"/> Finalized Decision Criteria <input type="checkbox"/> Strategy Evaluation and Assessment Report <input type="checkbox"/> Strategy Implementation Plan

Examples of Planning & Analysis Tools

T O O L K I T	<p>Project Planning: Charter Template, Gantt Chart / Timeline, Work Breakdown Structure, Stakeholder Engagement RASIC Model (Responsible, Approves, Supports, Informed, and Consulted)</p>	<p>Specific Issue Framing: Issue Trees, Logic Trees, Ishakawa / Fishbone Diagram, Process Maps, Activity Network Diagram, In / Out Frame Project Scoping Tool, DOTMLPF+RAGS, STEEP, PESTLE, Affinity Diagram, Influence Diagram, CIO Functional Capabilities and Activities Catalog</p>	<p>Strategy Alternatives Development & Refinement: DOTMLPF+RAGS, STEEP, PESTLE, Focus Groups, Morphological Box, Strategy Table, Alternate Worlds Envisioning, Benchmarking, McKinsey 7-S, Porter's 5 Forces, Porter's Generic Strategies, Porter's Value Chain, Burgelman's Strategy Dynamics, Nonaka & Takeuchi's Knowledge Spiral, Kim & Mauborgne's Blue Ocean, Greiner's Growth and Crisis Model, Lewin's Force Field Analysis</p>	<p>Analysis Execution: S&T Systems Analysis Guidebook, CIO Functional Capabilities and Activities Catalog, Pugh Matrix Analysis, SWOT Analysis, MCDA / AHP / VFT Analysis, Kaplan and Norton's Balanced Scorecard Evaluation, Alternate Worlds / Robustness Testing of Strategies, Case Study Summarization, Inferential and Descriptive Statistics (Averages, Variance, Regression, ANOVA, Causal Modeling), Population Analysis, Forecasting / Time Series Analysis (ARIMA, GARCH), Econometrics (Logit, Probit, Discrete Choice Models, Hazard Modeling, Survival Analysis), Game Theory, Link Analysis, Cluster Analysis, Geospatial / GIS Analysis, Text Mining, Sentiment Analysis, Sensitivity Analysis, Experimental and Quasi-Experimental Design</p>
	<p>Problem Context Framing: DOTMLPF +RAGS, STEEP, PESTLE, Benchmarking vs. Other Countries, 6 Thinking Hats</p>	<p>Data Collection for Analysis: Administrative Records, Budget Input, Databases, Expert Elicitation Protocols, Extracting Data from Completed Studies, Assessments, and Models</p>		
	<p>Information Collection for Background: Lit. Review, Case Study Summarization, Interviews, Focus Groups, Problem Framing Surveys, Delphi Method, Nominal Group Technique (NGT), 6-3-5 Brain-Writing Method, Affinity Diagrams, Benchmarking</p>	<p>Risk Analysis: 31 Risk Assessment Techniques in ISO 31010 (e.g., Fault Trees, Event Trees, Decision Trees, Bow Tie Analysis, Bayesian Networks, Failure Modes & Effects Analysis, FN Curves, Monte Carlo Simulation, Risk Indices, Consequence Probability Matrices)</p>		

Challenges and Opportunities for Analytics in SPAR

- “No Data” to “Big Data” problem space
- Focusing to the most significant Homeland Security risks facing the Nation
- Multi-disciplinary, collaborative, innovative, qualitative and quantitative analysis
- Technically defensible, relevant, timely, and useful to senior decision-makers
- Specialized staffing required to thrive in a start-up culture, dealing with complex / messy problems, short time frames for never-before-done analyses, and high visibility of projects



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Final Takeaways

- Pick and choose technique(s) to fit the problem at hand and what will resonate with your decision-maker(s)
 - No single “right” way to evaluate risk
- Implementing Enterprise Risk Analytics is an ongoing process of building analytic capabilities (people and data / tools / models) to support the decision processes and problems within your unique organization
- “Act as if what you do makes a difference. It does.”

— William James





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